



स्त्रीवाद : संकल्पना आणि सिध्दांकन

प्रा. शुभदा उपासे-शिवपूजे

मराठी विभाग प्रमुख

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व्ही.जी. शिवदारे कॉलेज ऑफ आर्ट्स

कॉमर्स अँड सायन्स, सोलापूर

स्वातंत्र्योत्तर काळात लोकशाही आणि शिक्षणाच्या प्रसारामुळे अनेक समाजघटक जागृत झाले आणि आपल्या प्रश्नांसाठी चळवळी सुरू केल्या. ह्या उपेक्षित घटकांनी चळवळीबरोबरच आपले प्रश्न आपल्या साहित्यातून मांडले. साहित्य केवळ मनोरंजनाचे साधन न राहता ते सामाजिक प्रश्नांचे व्यासपीठ बनले पाहिजे ह्या भूमिकेतून लेखन केले गेले. स्वातंत्र्योत्तर काळातील भारतीय स्त्रीला अनेक घटना प्रसंगातून, संस्था-संघटनातून, चळवळी-सत्याग्रहातून आपल्या नव्या रुपाची जाणीव होऊ लागली. स्त्रियांचे प्रश्न ऐरणीवर आले. अनेक स्त्री संघटनांनी स्त्रियांच्या प्रश्नावर आंदोलन करून लोकमत जागृत केले, ह्यातून आपल्या देशातील स्त्रीवाद' जन्मास आला.

'स्त्रीवाद' ही आधुनिक काळात अस्तित्वात आलेली एक महत्वाची संज्ञा आहे. १९७५ हे वर्ष 'जागतिक स्त्री वर्ष' म्हणून घोषित झाल्यानंतर सगळीकडे स्त्री आणि संबंधित अवकाश हा विषय चर्चेच्या केंद्रभागी आला. सरंजामशाही, हुकूमशाही, भांडवलशाही, लोकशाही इ. विविध वळणे धारण करीत निघालेल्या मानवी जीवन प्रवाहात स्त्री पुरुषांच्या जगण्याला कोणकोणते आवाम प्राप्त होतात व त्यातून कशा प्रकारचे वास्तव अस्तित्वात येते त्याचे संशोधन व अभ्यास करणाऱ्या विविध शाखा निर्माण झाल्या. त्यातून अनेकविध ज्ञानक्षेत्रे निर्माण होऊन ती समृद्ध पावली. 'स्त्रीवाद' या आधुनिक अभ्यास शाखेनेही मानवी समाजशास्त्रीय क्षेत्रात स्वतंत्र आणि महत्त्वपूर्ण भर टाकण्याच्या प्रक्रियेत योगदान दिले आहे.

वास्तविक पाश्चात्य जगात ही चळवळ १७ व्या शतकापासून सुरू झालेली दिसते. तिला नेमके रूप प्राप्त होण्यासाठी २० वे शतक उगवावे लागले. १९७५ हे वर्ष जे 'स्त्री वर्ष' म्हणून घोषित झाले. त्यामागे अर्थातच शतकानुशतकांच्या प्रयत्नांची पार्श्वभूमी आहे. १९८० मध्ये या चळवळीचा तत्त्वकः परिपाक होऊन 'स्त्रीवाद' आणि 'स्त्रीवादी समीक्षापद्धती' अशा संज्ञा विकसित होत गेल्या. स्त्रीवादाची ही परंपरा मराठीमध्ये आधुनिक अर्थाने झालेली असली तरी त्याला फार मोठी परंपरा भारतामध्ये आहे. मुळात भारत हा मातृसत्ताक परंपरेचा देश परंतु तो मागे पडला. साहित्य ही नेहमीच सांस्कृतिक संस्था असते. जीवनाभूतीच्या वैशिष्ट्यपूर्ण अंतर्दृष्टी साहित्यकृती प्रकटवत असत. साहित्याभ्यासात समाज, व्यक्तिमन यांच्या परस्परावलंबित्वाचेही आकलन अपेक्षित असावे म्हणून हा अभ्यास स्त्री जाणिवेतूनही झाला पाहिजे, असे स्त्रीवाद्यांना वादू लागले. त्यामुळे या दृष्टीतून अभ्यास दिशा अस्तित्वात आणण्याचे प्रयत्न केले गेले.

बाईचे माणूसपण नाकारून तिला जी पशुतुल्य स्थिती प्राप्त करून दिली जाते त्या विरुद्ध बंड पुकारून तिचे हक्क प्रस्थापित करून घेण्यासाठी निर्माण झालेले स्त्रीवाद एक पीठ आहे. स्त्री-पुरुष या लिंगभेदातून निर्माण केलं गेलेला विषमतेचा ढाचा, रुढी, परंपरा, प्रस्थापित प्रतिष्ठेच्या संकल्पना, अनेकविध संस्था याविषयी स्त्रीवादाने आपले स्वतंत्र असे अनेक सिध्दांत प्रस्थापित करण्याचा प्रयत्न चालविला आहे. स्त्रियांचे स्वतःच्या वेगळेपणाची जाणीव प्रकर्षाने व्यक्त करणारे व स्वत्वाचा शोध घेऊ पाहणारे साहित्य म्हणजे स्त्रीवादी साहित्य होय. साहजिकच पुरुषी साहित्यातून ते स्वरूपातः वेगळे ठरते तथापि साहित्य याचा अर्थ केवळ स्त्रीनिर्मित साहित्य नव्हे तर पुरुषकेंद्र विचारव्यूहातून मुक्त अशा परिप्रेक्ष्यातून कोणीही स्त्री वा पुरुषाने निर्माण केलेले साहित्य म्हणजे स्त्रीवादी साहित्य असेही व्यापक अर्थाने म्हणता येईल. पुरुषप्रधानतेला विरोध करणारे आणि स्त्रीचे माणूस म्हणून चित्रण



FTIR (Fourier transform infrared spectroscopy) spectroscopic analysis of dried leaf and fruit peel extract of *Capparis divaricata* lam.

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Abstract— *Capparis divaricata* lam commonly known as caper bush, belonging to genus *Capparidaceae*, found throughout India. In this study, we determine the phytochemicals in dried leaf and fruit peel extract of *Capparis divaricata* lam (*capparidaceae*). The FTIR (Fourier transform infrared spectroscopy) spectroscopy is an essential tool for determining the composition and structure of organic compounds. The FTIR spectroscopy is an essential tool for profiling biochemical compounds that exist in herbal extraction, FTIR method was selected because it is a very rapid and economic method for the characterizing of a functional group. The dried sample has been taken for the identification of chemical bonds which are present in the plant sample. The FTIR peaks analyzed in leaf shows the OH, CH₂, C=C, C-OH, CH₃ and CH, bonds while in fruit peel it shows OH, CH₂, C=C, C-OH, CH₃, CH and C=O bonds. The presence of C=O bond tells us that they are useful in organic synthesis catalysis and as catalyst precursors in homogenous catalysis. The CH₃ bonds suggest that the Methyl containing Amino Acid is present. The C-O-H group indicates the presence of Fatty Acids. Silicones and Sulfones the presence of various biological activities and are therapeutic targets. All the identified phytochemicals are having pharmacological activity and absorbance bond shows strong, stretching, symmetric and asymmetric bonds. So *Capparis divaricata* lam can be considered as a plant of phytopharmaceutical importance.

Keywords— *Capparis divaricata* lam, fruit peel, leaves, FTIR.

I. INTRODUCTION

Medicinal plants are a significant part of natural wealth. They have a large no of bioactive constituents therefore these plants are used to cure many infectious diseases. As per the reports of the world health organization (WHO), almost 80% of the global population depends on traditional medicine for the treatment of various disease and economic advantages. The various bioactive phytochemical constituents available in plants include alkaloids, saponins, glycosides, flavonoids, phenol, terpenes and carboxylic acid. Identification of the chemical present in the medicinal plants will provide some information on the different functional group responsible for their medicinal properties. Fourier Transform Infrared (FTIR) spectroscopy is an essential tool for determining

the composition and structure of organic compounds. It is a very rapid and economical method for characterization of functional groups and creates an analytical data which is considered as fingerprinting of that particular sample. The Infrared spectrum which is obtained from the plants may show some small changes in the metabolites. According to Ramamoorthi and Kannan (2007) screened the bioactive group of chemicals in the dry leaf powder of *Calotropis gigantea* by FTIR analysis.

Kareru *et al.* (2008) detected saponins in a crude dry powder of 11 plants using FTIR spectroscopy. Muruganatham *et al.* (2009) carried out the FTIR spectroscopic analysis in the powder samples leaf, stem and root of *Ecliptaalba* and *Ecliptaprostrata*. The FTIR analysis of *Bauhinia racemosa* leaf extract in an aqueous



Purification of Grey water using the natural method

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Abstract— The Water crisis is a major problem now a day. To solve this problem, there are various methods of water conservation such as rainwater harvesting or water reuse. Grey water treatment is also an option for water conservation. Grey water is the untreated household wastewater that has not come into contact with sewage (WHO -ROEM2006). In this study we have used various flocculating agents like alum, PAC, lime, chitosan, alum+ lime, fuller earth, ferric chloride, ferrous sulfate, PAM, Micro+, soya bean, alum+ soya bean etc. and the one that gave the most significant results were used for further study. Among the flocculating agents used, alum + soybean powder gave promising results. So this flocculating agent and coagulating aid were used for further experiment. We prepared biochar using groundnut husks which is a waste material and activated it using zinc chloride. We prepared a unit which consisted of a column packed with sand, gravel, activated biochar and vetiver roots. We passed the supernatant obtained after flocculation through this unit at flow rate 5L/hr. The effluent water was disinfected using Medichlor. Using this unit the turbidity was decreased to 0.08 NTU, pH was 6.3, TSS was nil, and TDS reduced upto 75%. The microbial load (bacteria, fungi, coliforms, Thermotolerants), MPN test was also found to be negative. The unit which we have prepared was ecofriendly and economically affordable. This treatment system can be used in the new constructions, bungalows, societies etc. The treated water can be used for various purposes such as gardening, car washing, toilet flushing, road construction, irrigation etc.

Keywords— Gray water, flocculation, activated biochar, treatment unit.

HIGHLIGHTS

- Grey water is the untreated household wastewater that has not come into contact with sewage.
- Microbial contamination of gray water comprises potential risk to health. Grey water also contains some chemical substances which may pollute the natural resources, So grey water needs to be treated.
- During this study, alum + Soybean powder showed best results as coagulation or flocculating agent and coagulation aid.
- Biochar was made using biological or organic material and was activated using $ZnCl_2$

- Water passed through our natural treatment unit followed USFDA norms.
- The treatment unit was made of natural material, hence the unit was ecofriendly and economically affordable.

I. INTRODUCTION

Grey water is spelt and defined differently in different parts of the world. It is the household wastewater that has not come into contact with sewage (WHO ROAM 2006). With an anticipated increase in world population by 2-3 billion people over the next decades (WHO 2010), the water demand is increasing two-fold (64 billion cubic meters per year). Urbanization is growing by 1.5% per year

3) Research Publication - Author: Ms. Snehal Joshi

https://www.ijeab.com/upload_document/issue_files/2IJEAB-10220221-Purification.pdf

ANTI-INFLAMMATORY ACTIVITY OF POLY-HERBAL AEROSOL SPRAY AS A SUPPORTIVE THERAPY FOR INFLAMMATION

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ABSTRACT

The present study was intended to assess the poly-herbal topical aerosol spray as a sympathetic therapy for clinical inflammatory disorders. A total of 18 mice were suffering from induced inflammatory disorders were selected and were sprayed on inflamed affected area. Topical application of spray have shown a significant improvement ($P < 0.001$) in alleviation of paw inflammation. The results demonstrate that these types of advanced spray could be considered as an alternative to non-steroidal anti-inflammatory drugs (NSAIDs) as a supportive therapy for clinical inflammatory disorders.

Keywords: Anti-Inflammatory Activity, Nsaids, Poly-Herbal Aerosol Spray

Introduction

Inflammation is biological response of vascular tissue which is also characterized by redness, warmth, swelling and pain. Generally it is considered to be harmful stimuli against pathogens, irritants and injury associated with local vascular reaction and cellular response, of the living tissue, to an injury insufficient to kill the tissue, Agrawal et.al.(2010). Mostly inflammation is body's first line defense contrivance but unrelenting effects can lead to serious conditions like Inflammatory bowel disease (IBD), degenerative diseases such as rheumatoid arthritis, atherosclerosis, congestive heart failure, Alzheimer, cancer, multiple sclerosis, diabetes, gout disease, aging and other neurodegenerative CNS depression, Mikami et. al.(1883). Two types of inflammatory disorders are well known viz 'acute and chronic'. Acute inflammation lasts for minutes to several hours only which can be characterized by redness, heat and oedema. On contrary chronic inflammation is more prolonged resulting in fibrosis and tissue necrosis, Paliwa and Jilal (2018).

Treatment and management of inflammatory disease relies on tempering pain and since majority of the biological changes and pathological lesions are allied with clinical disease conditions as a result of the inflammatory reaction to infection, Xu et.al. (2019). Hence administration of anti-inflammatory agents to ease the inflammation

and pain along with other supplements, checks further tissue damage and spread of infection or allergic response facilitates inflammation management. Carcio and Bruce, (2008). Glucocorticoids and Non-steroidal Anti-inflammatory Drugs (NSAIDs) are the classical and well-studied examples of anti-inflammatory agents frequently used in treatment and management of inflammatory related disorders. Glucocorticoids and NSAIDs inhibit the release and metabolism of arachidonic acid thus hampering the release of prostaglandins, leukotrienes and thromboxanes thereby wielding their anti-inflammatory, analgesic and antipyretic effects, Esmail (2016). However, uncritical, overuse and long term use of these drugs are associated with a broad spectrum of adverse effects such as gastrointestinal and cardiovascular events, renal toxicity, hypertension. Moreover these types of synthetic anti-inflammatory preparations are quite lavish and repetition of the doses makes the treatment probably cost-prohibitive, Gangware et. al. (2015).

In recent years, widespread research and pharmacological assessments of active ingredients from distinct herbal species reveal the significant strength and efficacy of herbal medications in the management of pain and inflammatory conditions with less or no adverse effects, tolerance.

Analgesic and anti-inflammatory effects of various extracts and essential oils from herbal plants species have exhibited the significant effects in animal models. These activities are



Effect of Phosphorous Mobilizing and N₂ Fixing Bacteria on Growth of Plant

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ABSTRACT

The aim of our study is to clarify inoculating a soil with *Bacillus* and *Rhizobium* bacteria would stimulate the enzymatic cleavage organic phosphorus and nitrogen compound in the rhizosphere, promoting plant growth. Adding four treatment: 1) Viable *Bacillus* and *Rhizobium*. 2) Heat treated *Rhizobium* and *Bacillus*. 3) Bacterial mix with *Rhizobium* and *Bacillus*. 4) unselectively cultivated soil bacteria. We had done rhizobox experiment with greenhouse effect and plant were grown under low phosphorous and nitrogen condition. A plant growth promotion effect with improved P and N₂ observed in both viable and bacterial mix *Rhizobium* and *Bacillus* treatment. Inoculation of bacteria increased microbial phosphate and nitrogen activity in rhizosphere. Plant growth promotion is primarily associated with increased microbial phosphorus activity(PA) and nitrogen activity (NA) in soil.

Keywords: Phosphorus-mobilizing bacteria, Nitrogen Fixing bacteria, Plant growth promoting bacteria, *Solanum Lycopersicon*, *Bacillus* and *Rhizobium*

1. Introduction

It is well known that rhizosphere processes are necessary for plant P acquisition, the processes underlying growth promotion by beneficial microorganism are even not well understood. Since organic P and N₂ are often the dominant forms P and N in soil; and may constitute up to 90% of the total P and N₂ in soil. For conversion of organic P into plant available form, the P mineralization is a pre-requisite. The extracellular Phosphates produced by microorganism and plants catalyzes mineralization of P. Microorganism produces acid as well as alkaline phosphatases, whereas plants produce only acid phosphatases. Microbial and plant P acquisition occur in different zones of rhizosphere. Plant uptake of P occurs mostly at root tips and in the proximal elongation zone, whereas microbial P uptake is highest in the root hair zone. For conversion of organic N₂ in plant available form, the N₂ mineralization is pre-requisite. Microbial P and N₂ comprise the major share of phosphatase and Nitrogen in soil, contributing significantly to the P and N₂ of plant. Phosphorous mobilizing bacteria (PMB) and Nitrogen fixing bacteria are beneficial bacteria that effectively mobilize P and N₂ through solubilization of sorbed P pool and N₂ pools; and mineralization of organic P compounds which are otherwise not readily available in plants. Application of PMB and N₂ fixing bacteria to soils can therefore be a promising approach for improving P fertilization efficiency in agriculture.

In several studies it has been documented that the targeted application of high concentration of PMB such as representative from *Bacillus*, and fungi in soil limited in P availability for plants result in effect of plant growth. Whether future use of PMB and N₂ fixing bacteria can improve P & N₂ nutrition of arable crops and vegetables remains to be tested. Three various microbial-driven functional mechanisms are currently being investigated. First, the added PMB might release the phosphatases by catalysing the hydrolysis of organic P compound. Second, the PMB secretes organic acid that reduces by secreting organic acids which would reduce rhizosphere pH, and other Organic acids like bicarbonates, carboxylates, and other anions function as exchange

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5) Research Publication - Author: Dr. Dhanve R.S.

<https://www.ijrpr.com/uploads/V2ISSUE4/IJRPR397.pdf>

Wine Production from Different Types of Fruit Peels and *Beta vulgaris*

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ABSTRACT

The process of wine making begins with selection of fruit. Adding the pulp of *Beta vulgaris* with the different types of fruit waste peels, helps to increase the alcohol percentage and it gives natural color to the wine. The wine is produced by using the *Saccharomyces cerevisiae*. Primary and Secondary fermentation of these material is done for 7 to 28 days respectively, during which aliquots sample analysis of pH, alcohol estimation, Protein estimation, Carbohydrate estimation, Ash percentage, etc were carried out using standard procedure. During the fermentation period, consistent increase in alcohol content was observed with the time. This study shows that acceptable wine can be produced from different types of fruit peels and *Beta vulgaris*.

Wine has been produced by mixing different types of fruit peels and *Beta vulgaris*.

Among all the wine attributes, the contribution of fruit peels and *Beta vulgaris* wine was maximum.

Keywords- Wine production, Fruit peels, *Beta vulgaris*, Fermentation, *Saccharomyces cerevisiae*

I. INTRODUCTION

Wine is an alcoholic beverage made from fermented fruits juice, without the addition of sugar, acids, enzyme and water. The earliest archaeological evidence of grape wine has been found at sites in Georgia(6000BC), Iran(5000BC), Sicily(4000BC). The oldest evidence of wine production has been found in Armenia(4100 BC). Most commercially produced wines are usually made from fermented grapes. During this process, yeast is added to crushed fruits. No other chemicals or sugars are added. Yeast has the capability of converting the sugar from fruits into an alcoholic compound and thus reducing the sugar content in it for the production of different types of wine. The wine mainly has 5 types, that are - 1. Red wine. 2. White wine. 3. rose wine. 4. Dessert wine. 5. Sparkling wine. Fruits and vegetables are consumed in large quantities all over the world. However, the peels of these fruits, which by themselves have a high nutritional value are usually discarded and turn into waste. In our study we propose to make wine using such fruit peels. This will reduce wastage and provide us with a commercially valuable product like wine.

For our study, we used peels of commonly available fruits such as banana, sweet lime, pomegranate, watermelon, orange, etc. were used and the pulp of *Beta vulgaris* (Beet root) is used for the wine production. Beet root pulp gives the wine a rich red color. Peels were anaerobically fermented with *Saccharomyces cerevisiae* for a period of 7-28 days. The alcoholic by product obtained as a result were checked for their physicochemical properties.

II. MATERIALS AND METHODS

Sample Collection

The peels of Banana, Pomegranate, Sweet lime, Watermelon and pulp of beet root, etc. The covers or peels are found in every local market, juice center and in home as well also.

Activation of Yeast

For the wine product the yeast balls were needed not yeast powder. *Saccharomyces cerevisiae* (Baker's Yeast) is preferred mostly and in that some(1gm) sugar was added. It was dissolved and then Yeast (5gm) were added corresponding to the volume of fruit peel juice. It was stirred thoroughly for proper mixing and kept for 1hr. All this procedure was done in aseptic condition.

Inoculum Preparation

Take the fruits peels of thoroughly washed. Weight all the samples(15gm each) in equal quantity, but all the process is done in aseptic condition. Grind the sample with the help of Grinder and make the juice of it. Then filter the juice and pour into the flask. Then add yeast in all the flask. Adjust the pH it should be acidic(3-6) and temperature it should be at (37°C). Add the pinch of antifungal reagent in the juice. The flask is plugged tightly with the help of cotton plug. Keep it on shaker for half an hour. Then keep it for incubation for 8-10 days and after that do the necessary test for wine. Then wine is ready to drink.

Physiochemical Analysis

a) **pH Determination:** The pH was determined using digital pH meter. The pH was acidic as required.

b) **Determination of Reducing Sugar:** The quantitative estimation of reducing sugar of the wine was determined using the method described by MILLER(1971) using 3,5 dinitrosalicylic acid (DNSA). The optical density of

***Catharanthus roseus*: A Symbol of Hope for Cancer Patients**

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Short Communication

Cancer is one of the most life-threatening diseases and serious public health problems in both developed and developing countries [1]. The major events include transformation, dysregulation of apoptosis, proliferation, invasion, angiogenesis, and metastasis [2-4].

Patients suffering from cancers of various organs are increasingly exploring the benefits of alternative medicine, primarily because they experience side effects due to usage of modern anticancer drugs or wish to try new therapies in the hope of getting better [5-8].

The plant has been used in traditional medicine since ages in various parts of the world. A number of alkaloids isolated from this plant are already in clinical use, e.g. ajmalicine-an antihypertensive alkaloid, and vincristine and vinblastine-the antineoplastic bisindole alkaloids. Drugs used in the treatment of most cancers are those that can interfere with cell signaling, like growth factor signaling, prostaglandin production, inflammation, drug resistant gene products, cell cycle proteins, angiogenesis, invasion, anti-apoptosis, cellular proliferation and many others [2-4].

Medicinal plants are playing an important role as a source of effective anticancer agents and it is significant that 60% of currently used anticancer agents are derived from natural sources including plants [9]. Many plant-derived products have been reported to exhibit potent antitumor activity against several rodent and human cancer cell lines [6].

Pharmacological studies have revealed that *Catharanthus roseus* contains more than 70 different types of alkaloids and chemotherapeutic agents that are effective in treating various types of cancers-breast cancer, lung cancer, uterine cancer, melanomas, and Hodgkin's and non-Hodgkin's lymphoma [10].

As modern chemistry developed, chemicals and various constituents were isolated from medicinal herbs [10-12]. These phyto-constituents have served either as drugs that are being used widely today or as starting materials for their synthesis. Modern medicines derived from herbs are gaining attention throughout the world today. Potential of modern pharmacology that has played a supportive role in making drugs safer and more effective.

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Production and Characterization of Bioplastic from Phycocolloids

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ABSTRACT

Plastic that is made partly or wholly from polymer derived from biological sources such as sugarcane, potato or starch is called bioplastic. It is bio based, biodegradable or features both the properties. The use of Bio plastic is growing rapidly because of their clear advantage over traditionally used plastic. Bio plastic can be used in packaging industries, in the making of capsules and pills, mobile cases, for making baby toys, etc. The main aim of this study was to identify the potential use of agar (Phycocolloids) in the making of bio plastic. The term phycocolloid is used to describe a colloid derived from seaweed; a colloid in turn is defined as a non crystalline substance with very large molecules. A phycocolloid is thus simply a seaweed gum. The results of current study show that agar can be successfully used for making bio plastic.

Keywords- Agar, Glycerine, Water, Bioplastic, Phycocolloids

I. INTRODUCTION

Now a days seaweed has received much interest and application related to biosensors, food etc. Similar to other polysaccharide material seaweed also is useful because, it is an inexpensive source of polysaccharide harvested from sea. Alginate, carrageenan and agar are common seaweed. However, seaweed films have strong mechanical property compared to non-renewable polymers. So the seaweed is mixed with the other components to improve the properties of seaweed film.

II. MATERIALS AND METHODS

For preparing the agar bio plastic film, agar powder was used. The glycerine and water were used as plasticizer.

Bioplastic Preparation

Powder of commercial and algal agar (lab grade) with optimized concentration is used in the preparation of bio plastic. Varying concentrations of agar and glycerine were used and the strength or stretch ability of the bio plastic film obtained from it was checked. Glycerine is used as plasticizer, due to its better mechanical properties and good water solubility. The agar and glycerine was added to 100mL water in various ratio. The mixture was stirred for 10 to 15 min then the mixture was heated on conical flask for proper dissolving of agar. It was then poured onto a glass tray and steel tray and spread uniformly. It took 3 days for the mixture to dry out and the film was removed.

III. CHARACTERIZATION

1. Biodegradability Test:

The specimen was cut into pieces of the 4.0cm. And placed near the roots of plants 3cm deep in soil. 500g of soil was collected and stored in a container as control. Both the test and control samples were kept in same condition for 60 days.



Figure 1: Biodegradability of plastic.

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वैदिक कालखंडातील स्त्री जीवन

प्रा. शुभदा शिवपूजे-उपासे

मराठी विभाग प्रमुख,
व्ही.जी.शिवदारे कॉलेज ऑफ आर्ट्स, कॉमर्स अँड
सायन्स, सोलापूर

वैदिक कालात स्त्रीयांना समाजात फार मानाचे स्थान होते. स्त्रीयांना अध्ययनाचा अधिकार होता. राजकीय आणि सामाजिक जीवनात भाग घेण्याचे पूर्ण स्वातंत्र्य होते. पुरुषांप्रमाणेच सर्व धार्मिक संस्कार त्या करीता असत, पतीच्या सर्व व्यवहारात भाग घेत असत. आर्यांची कुटूंबव्यवस्था पितृप्रधान होती आणि पित्याला कुटूंबात मानाचे स्थान होते. असे असले तरी कोणतेही धार्मिक कार्य स्त्रीशिवाय पूर्ण होत नसे. आर्य संस्कृती टिकली याचे कारण समाजातील स्त्रीयांचे मानाचे स्थान होय असे मानले जाते. जन्माला आल्यानंतर मुलीला प्रेमळपणे वागवले जाई. कारण जन्माला येणारी प्रत्येक मुलगी ही वीरप्रसवा बऱ्याच शक्यता असल्यामुळे तिला लोक आदराने वागवत.

• स्त्री स्वातंत्र्य :-

वैदिक कालातील स्त्रीयांचे स्वातंत्र्य नंतरच्या काळात कमी होऊ लागले आणि त्या दुस-यावर सर्वस्वी अवलंबून राहू लागल्या. मनु म्हणतो की कोणत्याही परिस्थितीत स्वतंत्रपणे असे स्त्रीने काहीच करू नये. कुमारी असताना पिता, यौवनकालात पती आणि वृद्धपकाळात पुत्र स्त्रीयांचे संरक्षण करतात, त्यामुळे स्वातंत्र्य उपभोगण्यास त्या अपात्र आहेत. वैदिक कालात सर्व संस्कार स्त्रीयांना लागू असत परंतु पुढे विवाहाखेरीज त्यांचे सारे संस्कार अमंत्रक लेखण्यात येऊ लागले आणि या बाबतीत स्त्रीयांची गणना शुद्धावरोबर करण्यात येऊ लागली. स्त्रीयांना जरी नाकारले होते तरी त्यांचे समाजातील स्थान काही ढळले नव्हते.

स्त्रीचे स्वामित्व अबाधित होते. ज्या समाजात स्त्रीया आदराने वागवले जाते तेथे देवता संतुष्ट होतात. जेथे त्यांची अवहेलना केली जाते तेथे कोणत्या कार्यात यश येत नाही; स्त्री पुरुष सुखासमाधानांदातात, तेथे नित्य कल्याण नांदते असे मनुने म्हणले आहे.

• शिक्षण :-

वैदिक काळात स्त्रिया देखिल पुरुषांच्या बरोबर शिक्षण घेत असत. चरण नावाच्या वैदिक अध्यापनपद्धतीत स्त्रियांना प्रवेश मिळत असे. पूर्वी स्त्रियांचे देखिल उपनयन होत असे आणि उपनयनानंतर पुरुषांप्रमाणेच त्या वेदाध्ययन करीत. शास्त्रकारांनी 'सद्योवक्षः' असे 'ब्रह्मवादिन्यः' प्रकारच्या स्त्रिया ऋषीप्रमाणेच वेदाभ्यासात आपले आयुष्य व्यतीत करीत. ऋग्वेदात ऋचातुन यज्ञयाग करणा-या तपस्वी आणि ऋग्वेदात वृत्तीच्या स्त्रियांची काही उदाहरणे आढळतात. या विश्ववारा, लोपामुद्रा या वैदिक कालखंडातील स्त्रियांच्या विद्वत्तेबद्दल प्रसिध्द होत्या.

घोषा ही काशीवत ऋषीची कन्या. ती ऋषिपदात जाऊन पोहोचली होती. अश्विदेवतेला उद्देशून ऋग्वेदाच्या दहाव्या मंडळात दोन सूक्ते रचले. या विद्वत्ता संपादन करून तिने आपल्या पिता महात्वाकांक्षा पूर्ण केली होती. विश्ववारा ही कुलात जन्माला आलेली स्त्री देखिल घोषातला ऋषिपदाला पोहोचली होती. अग्निदेवतेला उद्देशून ऋग्वेदात विश्ववाराने लिहिलेल्या सहा ऋचा लोपामुद्रा ही विदर्भ देशच्या राजाची कन्या अगस्ती ऋषीची पत्नी. ती देखिल ऋषीपदात पोहोचलेली होती. ऋग्वेदातील पहिल्या मंडळात नावावर दोन ऋचा आहेत.

उपनिषदकालात देखिल स्त्रियांच्या शिक्षण योग्य ती व्यवस्था केली जात होती. गार्गी, मेनका स्त्रिया विद्वान म्हणून गणल्या जात होत्या. या काळात मात्र स्त्री शिक्षण मागे पडले असावे. गुरुकुलात जाऊन अध्ययन करणाऱ्या स्त्रिया अगस्ती दिसत नाहीत; तरी परंतु स्त्रियांचे शिक्षण पित्यांकरवी करून घेतले जात असावे आणि लिहिता लिहिता वाचता येत असावे असे वाटते. कारिका



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Standardization of *in vitro* propagation protocol for pomegranate cv. Super Bhagwa

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Abstract

The present paper demonstrates the effect of different media and combinations of growth regulators to standardize different stages of *in vitro* propagation protocol for mass production of pomegranate cv. Super Bhagwa. In this investigation, shoot tips were used as explant and explant necrosis, culture contamination and culture establishment were found to be 7.61%, 16.39% and 76.66%, respectively. The combination of α -Naphthaleneacetic acid (NAA) and 6-Benzylaminopurine (BAP) was more responsive for culture establishment. T6 medium (Modified MS + Adenine Sulphate (60mg/l) + L-Arginine (60mg/l) + 1mg/l Kinetin + 0.1mg/l TDZ + 0.2 mg/l NAA + Undisclosed media supplements) registered maximum proliferation rate (3.800), however, MS medium supplemented BAP + very low concentration of TDZ/ZR and adenine sulphate (60 mg/l) along with 0.1/0.2 mg per litre NAA produced tallest shoot and high average shoot length.

In vitro rooting of proliferated shoots on Woody Plant medium (Lloyd and McCown, 1980) (WPM medium), irrespective of growth regulator concentration and type, took lesser number of days for root initiation as compared to half strength MS medium (Murashige and Skoog, 1962). Major roots per shoot (5.00) and the rooting percent (76%) were found highest in WPM medium supplemented with 1.0 mg/l NAA as compared to other treatments. Use of half strength concentration of MS medium and full strength WPM was an attempt to reduce the salt concentration to enhance rooting *in vitro*.

Arbuscular Mycorrhizal Fungi (AMF; predominantly *Glomus intraradices*) inoculated plants depicted higher relative leaf water (85.27%) and more leaf chlorophyll content (2.17) as compared to non-inoculated micropropagated pomegranate plants of cv. Super Bhagwa.

Keywords: arbuscular mycorrhizal fungi, *In vitro* propagation, pomegranate, *Punica granatum*

Introduction

The pomegranate (*Punica granatum* L.), belongs to family Lythraceae, has grown leaps and bounds during the last decade. The pomegranate is one of the oldest known edible fruits. It is an economically important crop of the semi-arid tropics of the world due to its highly nutritious edible fruits, high returns, great export demand, versatile adaptability, low irrigation water requirement and pharmaceutical and ornamental usage (Bhandari, 2012; Singh *et al.*, 2012; Singh *et al.*, 2016) [1, 2, 3]. The fruit is a good source of sugars and Vitamin C, whereas seeds with arils are sun-dried and commercially marketed as condiment or spice, food flavoring agents, besides, having huge market potential as pomegranate seed oil owing to its immense medicinal properties (Parmar and Kaushal 1982; Pal and Singh, 2017.) [4, 5]. The plant is well adapted to drought with high distribution extending from Iran to Himalaya in Northern India and has been cultivated throughout the Mediterranean region (Soloklui *et al.*, 2012; Singh *et al.*, 2015) [6, 7]. Pomegranate is conventionally propagated through air layering, hard wood and soft wood cuttings (Chandra *et al.*, 2014; Pal and Singh, 2017) [8, 5]. But these traditional propagation methods do not ensure disease free and healthy plants.

Mass multiplication through tissue culture is necessary to meet the rapidly increasing demand for elite pomegranate planting material. Both direct and indirect organogenesis including somatic embryogenesis have been successfully attempted in pomegranate for plant propagation and other purposes. Micropropagation in pomegranate can be initiated through regeneration of existing meristems or regeneration from adventitious meristems or through regeneration by somatic embryogenesis (Naik *et al.*, 1999, 2000; Singh *et al.*, 2007; Kajla *et al.*, 2013; Gurumanna *et al.*, 2018) [9, 10, 11, 12, 13]. Healthy and disease free planting material is a key to the productive pomegranate orchard. Since 2005, pomegranate cultivation in India is severely affected by a bacterial disease causing huge economic losses (Sharma *et al.*, 2017) [14]. Urgent supply of disease free elite planting material is possible through tissue culture to non-

BIODEGRADATION OF TEXTILE AZO DYES BY BACTERIAL STRAIN ISOLATED FROM DYE-WASTE EFFLUENT

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ABSTRACT

A variety of synthetic dyestuffs released by the textile industry pose a threat to environment safety. Azo dyes account for majority of all dyestuffs because they are extensively used in the textile, papers, food, leather, cosmetics and pharmaceutical industries. Existing effluent treatment procedures are unable to remove recalcitrant textile azo dyes completely from effluent because of their color fastness, stability and resistance to degradation. Bacterial decolorization and degradation of azo dyes under certain environmental conditions has gained momentum as method of treatment, as these are inexpensive, eco-friendly and can be applied to wide range of such dyes. Dye degradation is process in which the large dye molecules are broken down chemically into smaller molecules. The resulting products are water, carbon dioxide, and mineral by products. With consideration of above principle, present study isolated azo textile dye degrading 7 bacterial strains from textile industrial effluent/dyestuff(Solapur), using serial dilution techniques and biochemical analysis. Dye degradation study carried by incubation of strain in minimal broth with dye (0.1mg/lit) was done. After respective time interval in UV-Spectroscopic analysis considerable reduction in dye absorption is recorded.

Keywords : Dye waste effluent, Azo dye Biodegradation, Decolorization, UV-Spectroscopic analysis, Biochemical tests.

INTRODUCTION

Rapidity of industrialization and urbanization around the world has led to the recognition and understanding of relationship between environmental pollution and public health^[1]. The pollutions triggered by the human activities have become the top most challenge for modern civilization. Dyes are synthetic, aromatic, water-soluble and dispersible organic colorants with an annual production of over 7×10^5 metric tons worldwide^[1]. Synthetic dyes are extensively used in textile dyeing, paper printing, colour photography, pharmaceuticals, cosmetics and various industries^[1]. Azo dyes are one of the versatile class of synthetic dyes with the greatest variety of colors been used extensively for textile, leather dyeing, and paper painting and printing^[6], color photography as additives in petroleum products because of their ease and cost effectiveness in synthesis, firmness, high stability to light, temperature, detergent and microbial attack and variety in color as compared to natural dyes (Couto 2009). Microorganisms that have the ability to decolorize dyes have been reported by many researchers.



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Quality RNA isolation, cDNA synthesis and qPCR validation of differentially expressed gene in *Punica granatum* L. under influence of *Xanthomonas axonopodis* pv. *punicae*

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Abstract

Bacterial blight is a widespread disease in pomegranate that causes great loss to farmers. The causative agent for this disease is *Xanthomonas axonopodis* pv. *punicae*. The present study was taken up to standardize protocol for quality total RNA extraction from various tissues of pomegranate, cDNA synthesis and qPCR validation of differentially expressed gene(s) identified from RNA sequencing data of susceptible and moderately resistant pomegranate genotypes upon challenge inoculation using qPCR. In the study, Phenol-Chloroform, Modified CTAB-LiCl and Trizol methods were evaluated for their efficiency to extract quality total RNA from infected and uninfected leaf and fruit tissues of pomegranate genotypes (Bhagwa and IC-1181). The concentration of extracted total RNA were quantified using Qubit Fluorometer and Qiagen QIAxpress and the quality of 18S and 28S bands of ribosomal RNA also assessed on agarose gel electrophoresis. Phenol-Chloroform method gave the highest concentration of total RNA having Qubit Fluorometer and QIAxpress readings ranged from 3.86 to 5.78 ng/μl and 543.5 to 1684.3 ng/μl, respectively. The time consumed and cost incurred on total RNA isolation were also least in Phenol-Chloroform method (50 minutes and Rs. 29.75/sample, respectively) as compared to other methods. From the high quantity total RNA, cDNA were synthesized using cDNA synthesis kit (HiMedia cDNA synthesis kit) and Xyloglucan endotransglucosylase coding gene was validated using qPCR. The qRT-PCR results showed that gene which code for Xyloglucan endo transglycosylase was slightly over expressed in the infected leaf samples of Bhagwa at infection stage 1 and 3 as compared with the control sample whereas the same gene had under expression in infected leaf sample of IC 1181 as compared to control.

Keywords: Pomegranate, total RNA, *Xanthomonas axonopodis* pv. *punicae*, qPCR

Introduction

Pomegranate (*Punica granatum* L.) is an ancient fruit tree from Iran. Its cultivation has remarkably increased by more than ten folds within a short span of about little more than 2 decades. Touched an all-time high of 0.226 million hectares in recent years with the production of approximately 2.6 million tons (<http://www.nhb.gov.in>). It is well adapted to drought and having distribution extending from Iran to Himalaya in Northern India and has been cultivated throughout the Mediterranean region [1, 2]. In recent years pomegranate has acquired central place in the fruit basket of the semi-arid regions of India because of its versatile adaptability, high market demand, more returns, less irrigation water requirement, excellent keeping quality, large array of high-quality value-added products, nutraceutical and pharmacological properties [3-6]. Pomegranate juice has been analyzed to have antioxidant capacity and it is good source of sugar, vitamin B, vitamin C and a fair source of iron. These specialized and peculiar features have contributed to the inclusion of pomegranate into the coveted category of 'Super Fruit'.

Bacterial blight is a widespread disease that causes damage to pomegranate fruit and the causative agent is *Xanthomonas axonopodis* pv. *punicae* [7]. This disease causes upto 80% of the total yield loss in pomegranate under serious epiphytotic conditions a serious concern for farmers and pomegranate industry [8]. Bacterial blight was first time reported in India from Delhi [9]. Presently, the disease occurs widely and outbreaks has been reported in all major pomegranate growing state including Maharashtra, Karnataka and Andhra Pradesh. The disease has also been reported from South Africa [10], Pakistan [11] and recently from Turkey [12].

Evaluation of Antimicrobial Properties and Phytochemical Content of Leaf and Fruit Peel Extract of *Capparis divaricata*

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KEYWORDS

Capparis divaricata,
antimicrobial,
phytochemical analysis,
fruit peel.

ABSTRACT

The use of plant as medicine is as old as human civilization of people of all ages. Both developing and developed countries use plant in an attempt to cure various diseases and get relief from physical suffering. The Indian subcontinent has a rich flora of various plant used in traditional medical treatments. *Capparis divaricata* is a drought resistant plant growing in dry region. *Capparis divaricata* (family -*Capparidaceae*) is found throughout India especially in Deccan peninsula from Maharashtra southwards to TamilNadu. It exhibits different uses as Herbal medicine. Therefore, the present study was undertaken with the objectives to assess the antimicrobial properties and phytochemical contents of the leaf and fruit peel extract of *capparis divaricata*. Results are analyzed and tabulated. In *E.coli*, *E.coli* PUC18 and *Bacillus cereus* the extract of *capparis divaricata* at the concentration 100,200,300 mg were prepared zone of inhibition is calculated in mm. phytochemical analysis reveals the presence of alkaloids, tannins, saponins, and glycosides in sufficient amount.

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Introduction

The use of plant as medicine is as old as human civilization. Medicinal plants are considered as a rich source of wide variety of ingredient which can be used for the development of drug. Specific plant knowledge may provide insight for strategic consumption and sustainable use. The continuous usage of herbal medicine by a large proportion of the population in the developing countries is largely due to the high cost of western pharmaceuticals and health care. The alternate medicine system is now gaining momentum with the knowledge of active principles identified from plant species.

Capparis divaricata is a drought resistant plant

growing in dry region. *Capparis divaricata* (family -*Capparidaceae*) is found throughout India especially in Deccan peninsula from Maharashtra southwards to TamilNadu. It exhibits different uses as Herbal medicine. Therefore, the present study was undertaken with the objectives to assess the antimicrobial properties and phytochemical contents of the leaf and fruit peel extract of *capparis divaricata*. No reports have been found concerning the pharmacological action of dry leaf and fruit peel of *capparis divaricata*. Therefore the present study was undertaken to evaluate the antimicrobial and phytochemicals of the aqueous and ethanolic extract of the aerial parts and fruit peel of *capparis divaricata*.

Bioactivity of Locally Available Plants on Cotton Whitefly, *Bemisia tabaci* and the fungus isolated from cotton

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Abstract— Aqueous, diethyl ether, chloroform, petroleum ether, N-hexane and benzene extracts of locally available plant species were tested for phytochemical and insecticidal bioactivity against cotton whitefly, *Bemisia tabaci*, under controlled conditions. This study is within bioprospection context, for utilizing local plant species as alternative in sustainable agriculture development. The leaf and stem extract was used. The whole plant extract of *T.procumbens* followed by *N.oleander* and *V.rosea* showed repellent and toxic effect against adult and second nymphal instars. Leaf extract of all three plants showed high inhibition activity against nymphal instars. In case of flower extract less inhibition activity was shown respectively. Fungi which grow on the cotton plant was screened, characterized and checked for antifungal activity against the extracts of the plant material. Phytochemical analysis was also carried out by standard protocols.

Keywords— biological control, cotton, fungus, insecticides, phytochemicals, whitefly.

I. INTRODUCTION

Cotton being a natural fiber is one of the economically and socially important crop. It is a shrub, native to tropical and subtropical regions of the world. India is the second largest cotton producing country all over the world. But as per the recent studies, the crop yield of cotton is reducing year by year. Two years ago, the reduction in the crop yield was up to 5%. But now, it is increased up to 35% (K.R. Kranthi 2015). This is a threatening fact to the farmers. The main reason behind the reduction in crop yield is a disease called as 'whitefly disease'. It is caused by whitefly, *Bemisia tabaci*, a small sap sucking insect. Its body is white or pale yellow in colour. The eggs are very small, having size up to 0.1 mm while the nymph and pupae grow up to 1 mm (Scott D. Stewart 1914.). The infection carried out by direct and

indirect feeding. Direct feeding is by sucking sap and release of honeydew. Indirect feeding is by honeydew. Honeydew, being a sugary substance attracts the ants which interfere with the natural enemies of whitefly. Honeydew is also responsible for the growth of black sooty mold below the leaves. (K.R. Kranthi, 2015).

T. procumbens is a weed well known for its medicinal properties. (Suseel et al. 2002). It is having antimicrobial activity, antibiotic, antispasmodics and anti-cancer properties. *N. oleander* is used in the treatment of cancer, leprosy and skin diseases. It is an evergreen shrub and have fragrant flowers. *V. rosea* is an important medicinal plant. It is an evergreen and perennial shrub. It is useful against a great variety of diseases such as diabetes, mouth ulcers, leukemia etc. It also shows anti microbial activity, anti mutagenic effect and anti oxidant activity. (Punia Sandeep, 2014).

The cotton growing farmers use much of the pesticide against the cotton whitefly. These chemicals are believed to affect the soil and groundwater.

Synergized pyrethroid cannot be used for more than two treatments, as the treatments show decreased efficiency in cotton while buprofezin is highly efficient to field but can be used once per season. The pyriproxyfen show great resistance. Previously imidacloprid was mostly used for cotton crop; but now-a-days it is used only for foliar treatment. Whiteflies from different host differ in susceptibility when exposed to imidacloprid. (UAC 2006)

The aim of the study is to extract the metabolites from different plants, their screening for phytochemical properties of extracts and bioinsecticide activity on infected cotton.

II. MATERIALS AND METHODS

2.1 Plant collection and processing

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Purification, properties and application of a collagenolytic protease produced by *Pseudomonas* sp. SUK

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The extracellular collagenolytic protease produced by *Pseudomonas* sp. SUK was purified to homogeneity by ammonium sulfate precipitation followed by DEAE-cellulose anion exchange chromatography. The enzyme was purified by 15.40 fold with 26.80% recovery and its molecular mass was found to be 58.6 kDa by SDS-PAGE. The optimum temperature and pH for the enzyme were 60 °C and 8.0, respectively. The purified enzyme was stable over a wide pH and temperature range and it was able to degrade various types of collagen. The K_m and V_{max} of the enzyme was $1.05 \pm 0.09 \text{ mg ml}^{-1}$ and $6.03 \pm 0.52 \times 10^{-4} \text{ mol l}^{-1} \text{ min}^{-1}$, respectively. EDTA, Fe^{3+} , Hg^{2+} , SDS, methanol and iso-propyl alcohol inhibited >25% enzyme activity whereas Zn^{2+} , Ba^{2+} , Ca^{2+} , Tween 80, toluene and *n*-hexane were found to be good enhancers. Biophysical characterization revealed that the enzyme is 68.4% α -helix and 8.32% β -sheet, with hydrodynamic radius of approximately 3.1 nm. Furthermore the enzyme has a negative charge at pH 7.5 with a zeta potential value of -28.7 mV and T_m $62.3 \text{ }^\circ\text{C} \pm 0.02 \text{ }^\circ\text{C}$. This study assumes that the collagenolytic protease purified from *Pseudomonas* sp. SUK could be potentially exploited for meat tenderization at reduced temperatures as well as in animal tissue cultures as a tissue dissociating and cell dislodging agent.

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1. Introduction

Protease represents one of the most important groups of enzyme with wide industrial applications, which accounts for approximately 60% of the total enzyme sales in the world.¹ Proteases from complex eukaryotic systems like plants and animals are very costly to produce and they cannot meet the current demand. This attracted scientist and researcher interest toward microbial protease production which is relatively simple and cost effective.² Microbial proteases account for approximately 59% of the total enzyme used worldwide.³

Collagen is the structural protein which is most abundant in the human body. Collagens are made up of three helically wound polypeptide fibrils and are approximately 30% of total proteins in mammalian body. Due to its structural complexity, collagen is very rigid in nature and can be cleaved by a limited number of proteases.⁴ Collagenolytic proteases are the enzymes having ability to hydrolyze the native and denatured triple helix of collagen to smaller fragments and hence they have wide application in pharmaceutical and food industries.⁵

In recent years collagenolytic protease has been exploited for various clinical as well as therapeutic applications like wound healing,⁶ preparation of intact mammalian cells,⁷ treatment of retained placenta,⁸ sciatica⁹ and various types of destructive fibrosis such as liver cirrhosis¹⁰ Dupuytren's contracture,¹¹ Peyronie's disease.¹² These proteases are also used as a hydrolyzing agent to obtain collagen or gelatin peptides with important biological activities like antihypertensive, anticancer and antioxidant.¹³ These peptides also have antimicrobial activity and are reported for their use in the suppression of collagen induced arthritis as well as osteoporosis.⁴ Food industry is another important sector where these proteases are extensively used. They have been used in production of protein hydrolysate as well as in meat tenderization.^{14,15}

Many collagenolytic proteases have been reported from various microbial sources, such as *Porphyromonas*,¹⁶ *Candida*,¹⁷ *Vibrio*,¹⁸ *Clostridium*,¹⁹ *Bacillus*²⁰ and *Penicillium*.²¹ *Pseudomonas* is a Gram-negative bacterium which is reported to have an array of proteolytic enzymes,²² but very little knowledge is known about collagenolytic protease from this species.

In our previous study, collagenolytic protease producing *Pseudomonas* sp. SUK was isolated and its production media was optimized with the help of RSM.²³ Present work describes the purification, biochemical and biophysical characterization of collagenolytic protease from *Pseudomonas* sp. SUK. The meat tenderization ability of purified collagenolytic protease at lower

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GROUNDWATER POLLUTION IN SHERI NALA BASIN, SANGLI DISTRICT, MAHARASHTRA, INDIA AND ITS IMPACT ON HEALTH- A CASE STUDY.

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Abstract

The area covered by the present investigation is a basin (lat.16°50' 05" N to 16°54' 45" N and long.74°33' 20" E to 74°38' 30" E) included in SOI toposheet no. 47 L/9. In total, 50 bore-well and 25 dug-well samples were collected and analyzed to understand the impact of groundwater pollution on the health of the people in the area. These samples were collected from five sub-basins of Sheri Nala. They are viz; Madhavnagar, Kupwad, Budhgaon, Sangli City and Padmale. For the present investigation, TH, TDS, Cl values and their impact on health of the people in the area has been studied. The observed values were compared with the standards. It has been observed that the values are higher in both pre-monsoon and post- monsoon periods. The higher values are mainly due to the industrial pollution in Madhavnagar and Kupwad sub-basins. Whereas, the values are higher in Budhgaon, Sangli City and Padmale sub-basins is due to improper maintenance of sewerage and septic tanks. To understand the effect of toxicity on the health of the public, 70 representative household samples were collected. It has been observed that 9% households are suffering from cholera, 13% from jaundice, 64% from gastroenteritis and 14% from typhoid diseases.

Keywords: Sheri nala, Geochemical analysis, Bore well, Dug well, Water borne diseases

1. Introduction

Water is one of principal elements of life and many functions of body depend on it. On the planet Earth water exists in substantial quantity i.e. 99% saline water and 1% fresh water bodies. Over 98% of fresh water on the Earth lies below its surface as groundwater resources. Groundwater is used for drinking, domestic, industrial and agricultural purposes in most parts of the world as it is a replenishable resource and advantageous over surface water. Groundwater acts as a reservoir by virtue of large pore space in Earth material, as a conduit which can transport water over a long distance and as a mechanical filter which improves water quality by removing suspended solids and bacterial contamination (Sharma, 2001).

The quality of groundwater is very important for human beings mainly for drinking purpose. Now a days, the groundwater potential and its quality is getting deteriorated in many cities and urban areas due to population explosion, urbanization, industrialization (Bathusa and Saseetharan, 2010). The chemical composition of water is one of the prime factors on which the suitability of water depends for domestic, drinking,

industrial and agricultural purposes. In the present investigation, Sheri Nala basin of Sangli District has been selected for evaluation of groundwater quality for drinking purpose and its impact on human health.

2. Review of Literature

The groundwater quality assessment of Jaysingpur town has been studied, considering physical and chemical parameters to evaluate the suitability of groundwater for drinking and domestic purpose (Yadav, et.al. 2011). By studying the quality of water from five ponds of Vadodara region, Gujarat it has been shown that pollution is caused by industrial effluents, domestic waste water and agricultural runoff (Solanki and Pandit, 2005). The groundwater quality assessment has been carried out to see the suitability of groundwater for domestic purposes from dug wells and tube wells and compared with W.H.O standards (Tiwari, Mishra and Mishra, 2005). Bhattacharjee, Das and Sharma, (2005) have evaluated the nature of pollution and effects of the physical and chemical parameters like color, turbidity, P^H , COD, BOD, alkalinity of water on Guwahati city. The groundwater quality study of Solapur Municipal Corporation area was carried out by Sawant and